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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,700	03/28/2005	Takuya Domoto	1141/72613	2449

23432 7590 08/25/2006

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EXAMINER	
KAO, CHIH CHENG G	
ART UNIT	**PAPER NUMBER**
2882	

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/500,700	DOMOTO ET AL.	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/26/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Vogler (US 4259580).

Vogler discloses a device comprising an anode rotation number detecting means (col. 9, lines 3-4) for detecting the rotation number of the anode on the basis of information of voltage and current (col. 8, lines 7-29).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 2, 3, 6, 12, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogler as applied to Claims 1 and 11 above, and further in view of Chalupa et al. (US 6366865) and Bonduel et al. (US 2002/0008537).

3. Regarding Claims 2 and 12, Vogler discloses all the characteristic features of the present invention as recited above. Vogler further discloses a device comprising at least one current detecting means (current sensing means, Col. 8, lines 10-11) for detecting current flowing through the stator coil (stator winding, Col. 4, lines 27-28) and at least one voltage detecting means (deriving voltage, Col. 8, lines 27-30) for detecting voltage of the stator coil (stator winding, Col. 4, lines 27-28).

However, Vogler fails to disclose a device including an impedance calculating means for calculating impedance of the anode rotation mechanism using an output of the voltage detecting means and the current detecting means, a predetermined impedance storing means for storing an impedance of the anode rotation mechanism corresponding to a predetermined rotation number of the anode, and a means for comparing the predetermined impedance with a present impedance calculated by the impedance calculating means and detecting that the present impedance is around the predetermined impedance.

Chalupa et al. also discloses a device including at least one voltage detecting means [(Col. 2, line 57; Fig. 2, #41) and (Col. 6, lines 59-61)] for detecting voltage of the stator coil [(Col. 2, line 13; Fig. 1, #11) and (Col. 6, line 60)] and at least one current detecting means [(Col. 2, lines 57-58; Fig. 2, #42) and (Col. 6, line 60)] for detecting current flowing through the stator coil [(Col. 2, line 13; Fig. 1, #11) and (Col. 6, line 60)]. Chalupa discloses a device including an impedance calculating means (resistance estimation method, Col. 1, lines 51-52; where: impedance is directly proportional to resistance $Z=V/I$, $R=V/I$:. $Z=R$) for calculating impedance (Col. 3, line 10; "R") of the rotation mechanism using an output of the voltage detecting means and the current detecting means (Col. 6, line 57 to Col. 7, line 10),

predetermined impedance [("preliminary" resistance, Col. 3, lines 13-14; "R") and (Col. 5, lines 60-63)] storing means (Col. 8, line 26) for storing an impedance of the anode rotation mechanism, and means for comparing the predetermined impedance with a present impedance calculated by the impedance calculating means and detecting that the present impedance is around the predetermined impedance (Col. 5, lines 28-53; Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Vogler by incorporating the features disclosed by Chalupa et al.

One would have been motivated to make this modification in order to have more information for better motor control (Col. 1, lines 6-30) as implied from Chalupa et al.

Bonduel et al. (2002/0008537) discloses the following equation:

$$\Omega_n = \frac{(U_n - RI_n)}{Ke}$$

Where Ωn is the angular speed and R is the resistance of the motor ([0014]). From this equation, it is apparent that the rotation number can be derived from the resistance.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the concept of calculating the rotation number using the resistance as disclosed by Bonduel et al. to the device disclosed by Vogler.

One would have been motivated to make this modification for better monitoring and control ([0001]) as implied by Bonduel et al.

4. Regarding Claims 3 and 13, Vogler as modified above discloses all the characteristic features of the present invention as recited above. Chalupa et al. further discloses a device including an initial impedance [("preliminary" resistance, Col. 3, lines 13-14; "R") and (Col. 5, lines 60-63)] storing means (Col. 8, line 26) for storing an impedance at the start of rotation calculated by the impedance calculating means. Bondouel et al. necessarily discloses means for detecting an event that the rotation number of the anode of Vogler is a predetermined rotation number on the basis of the impedance calculated by the impedance calculating means (using the equation disclosed by Bondouel et al. mentioned above).

However, Chalupa et al. fails to disclose an impedance ratio calculating means for calculating a ratio between the initial impedance and a present impedance calculated by the impedance calculating means.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide an impedance ratio calculating means since the concept of comparing the rotation number to the present impedance is equivalent to the concept of comparing the rotation number to the ratio of the present and initial impedance. Therefore, one of ordinary skill in the art would have found it obvious to substitute the concept for comparing the rotation number to the rotation of the present and initial impedance for the concept of comparing the rotation number to the present impedance.

One would have been motivated to make this modification in order to provide a more standardized means of comparing the values.

5. Regarding Claims 6 and 16, Chalupa et al. discloses a system wherein among voltage and current information related to the stator coil and input into the impedance calculating means, the voltage information is a target value of the voltage (Col. 6, line 57 to Col. 7, line 9).

6. Claims 4, 5, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogler as applied to Claims 1 and 11 above, and further in view of Kikkawa (US 4701683).

7. Regarding Claims 4 and 14, Vogler as modified above suggests all the characteristic features of the present invention as recited above. Vogler further discloses a device comprising at least one current detecting means for detecting current flowing through the stator coil (current sensing means, Col. 8, lines 10-11).

However, Vogler fails to disclose a device including a preset stator coil current storing means for storing a stator coil current corresponding to a preset rotation number, and means for detecting an event that a present stator coil current is around the predetermined stator coil current by comparing the stored stator coil current ant the stator coil current obtained by the current detecting means.

Kikkawa discloses at least one current detecting means (current detector portion, Col. 8, line 7; Fig. 5, #60) for detecting current flowing through a stator coil (Col. 8, line 9; Fig. 5, #14), preset stator coil current storing means (predetermined value, Col. 8, line 12) for storing a stator coil current necessarily corresponding to a preset rotation number, and means for detecting an event that a present stator coil current is around the predetermined stator coil current by

comparing the stored stator coil current and the stator coil current obtained by the current detecting means (current controller portion, Col. 8, lines 3-12; Fig. 5, #70).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device suggested by Vogler as modified above by incorporating the features disclosed by Kikkawa.

One would have been motivated to make this modification in order to better protect the circuit (Col. 1, lines 3-18) as implied by Kikkawa.

8. Regarding Claims 5 and 15, Vogler as modified above suggests all the characteristic features of the present invention as recited above. Kikkawa further discloses a device including an initial stator coil current (predetermined value, Col. 8, line 12) storing means for storing the stator coil current at the start of rotation detected by the current detecting means. Bonduel et al. necessarily discloses means for detecting an event that the rotation number of the anode of Vogler is a predetermined rotation number using the stator coil current obtained by the stator coil current calculating means (using the equation disclosed by Bonduel et al. as mentioned above).

However, Kikkawa fails to disclose a stator coil current ratio calculating means for calculating a ratio between the initial stator coil current and the present stator coil current detected by the current detecting means.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide an impedance ratio calculating means since the concept of comparing the rotation number to the present stator coil current is equivalent to the concept of comparing the rotation number to the ratio of the present and initial stator coil current. Therefore, one of ordinary skill

in the art would have found it obvious to substitute the concept for comparing the rotation number to the rotation of the present and initial stator coil current for the concept of comparing the rotation number to the present stator coil current.

One would have been motivated to make this modification in order to provide a more standardized means of comparing the values.

9. Claims 7-10 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogler, Chalupa et al., and Bonduel et al. applied to Claims 1, 6, 11, and 16, and further in view of Kuzniar et al. (US 6341155).

Vogler as modified above suggests all the characteristic features of the present invention as recited above. Vogler further discloses a device comprising an X-ray radiation start commanding means for receiving output voltage of the X-ray high voltage generating device between the anode and the cathode of the X-ray tube device when the rotation number of the anode reaches a predetermined number and outputting a command to generate X-ray from the X-ray tube device (see abstract).

However, Vogler fails to disclose a device comprising an anode rotation mechanism and an x-ray high voltage generating device for generating a DC high voltage to be applied between an anode and a cathode of the x-ray tube device.

Kuzniar et al. discloses a system having an anode rotation mechanism (induction motor, Col. 4, line 16; Fig. 1, #40) and an X-ray high voltage generating device for generating a DC high voltage to be applied between an anode and a cathode of the X-ray tube device (Col. 4, lines 45-63).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device suggested by Vogler as modified above by incorporating the feature disclosed by Kuzniar et al.

One would have been motivated to make this modification in order to provide better stability (Col. 4, lines 45-63) as implied from Kuzniar et al.

Response to Arguments

10. Applicant's arguments filed May 26, 2006, have been fully considered but they are not persuasive.

11. Regarding Volger, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., an anode rotation number detecting means for detecting the rotation number of the anode on the basis of impedance information) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

12. Regarding Chalupa et al. and Bonduel et al., in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Volger discloses techniques adapted to determine a rotation number of the anode. Chalupa et al. and Bonduel et al. further teach features for analyzing rotation. Therefore, the combination of references would

make obvious a device with an anode rotation umber detecting means (Volger) along with additional features (Chalupa et al. and Bonduel et al.) for the purposes of better monitoring and control, via additional data analysis.

13. Regarding Kikkawa and Kuzniar et al., in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., an anode rotation number detecting means for detecting the rotation number of the anode wherein the impedance is calculated) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In conclusion, applicant's arguments are not persuasive, and the claims remain rejected.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gk

Courtney Thomas
Courtney Thomas
Primary Examiner